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reference value.

REMARKS

The Office Action dated August 12, 2002 has been received and carefully noted. The above amendments and the following remarks are submitted as a full and complete response thereto. By this amendment, claims 1 and 4 are amended. Claims 3 and 6 are cancelled. No new matter is presented. Accordingly, favorable consideration of claims 1, 2, 4 and 5 is respectfully requested.

Claims 1-6 are rejected under 35 USC § 102(b) as being anticipated by Busato et al. (U.S. Patent No. 5,957,115). Applicants respectfully submit that the cited art neither teaches nor suggests all the elements of the claimed invention. Thus, in view of the following remarks, Applicants request reconsideration of claims 1-6.

Claim 1 is directed to a leakage determination system for an evaporative fuel processing system that causes a canister to absorb evaporative fuel generated from a fuel tank and supplies the evaporative fuel absorbed in the canister to an intake system of an internal combustion engine. The leakage determination system comprises a pressure detection means for detecting pressure within the evaporative fuel processing system. A pressure reduction means reduces the pressure within the evaporative fuel processing system until the detected pressure becomes equal to a first predetermined negative pressure by introducing negative pressure from the intake system. A negative pressure introduction means further reduces the pressure within the evaporative fuel processing system until the detected pressure become equal to a second predetermined negative pressure lower than the first predetermined negative pressure by introducing the negative pressure from the intake system under predetermined conditions after the pressure reduction by the pressure reduction means. A leakage determination means determines that there is a leak in the evaporative fuel processing system when the detected pressure detected during the introduction of the negative pressure from the intake system by the negative pressure introduction means is higher than a predetermined leakage reference value.

Claim 4 is directed to a leakage determination method for an evaporative fuel processing system that causes a canister to absorb evaporative fuel generated from a fuel

tank and supplies the evaporative fuel absorbed in the canister to an intake system of an internal combustion engine. The leakage determination method comprises a pressure detection step of detecting pressure within the evaporation fuel processing system, a pressure reduction step of reducing the pressure within the evaporative fuel processing system until the detected pressure becomes equal to a first predetermined negative pressure, by introducing the negative pressure from the intake system. A negative pressure introduction step of further reducing the pressure within the evaporative fuel processing system until the detected pressure becomes equal to a second predetermined negative pressure lower than the first predetermined negative pressure by introducing the negative pressure from the intake system under predetermined conditions after the pressure reduction at the pressure reduction step. A leakage determination step determines that there is a leak in the evaporative fuel processing system when the detected pressure detected during the introduction of the negative pressure from the intake system is higher than a predetermined leakage reference value.

The essence of the claimed invention, as recited in claims 1 and 4, is a leakage determination means for determining that there is a leak in the evaporative fuel processing system when the detected pressure detected during the introduction of the negative pressure from the intake system by the negative pressure introduction means is higher than a predetermined leakage reference value. As such, the claimed invention provides the benefit of accurately determining whether a leak has occurred by eliminating the influence of any temporary increases in pressures within the evaporative fuel processing system. Thus, the claimed invention provides a method of protection against erroneously reporting a leak in the system. Therefore, Applicants submit that the prior art fails to teach or suggest the claimed features of the invention, and thereby fails to provide the benefits and advantages which are provided by the present invention.

Busato is directed to a pulse interval leak detection system. Busato discloses an emission control system comprising a vapor collection canister a canister purge solenoid valve connected in series between a fuel tank and an intake manifold of an internal combustion engine. Busato also discloses a pressure sensor for sensing pressure in the evaporative emission space.

However, it is respectfully submitted that Busato does not teach or suggest all the

features of the claimed invention. Specifically, Busato does not teach or suggest a negative pressure introduction means for further reducing the pressure within the evaporative fuel processing system until the detected pressure becomes equal to a second predetermined negative pressure lower than the first predetermined negative pressure. Also, Busato does not teach or suggest that the leakage determination means for determining that there is a leak in the evaporative fuel processing system when the detected pressure, detected during the introduction of the negative pressure from the intake system by the negative pressure introduction means is higher than a predetermined leakage reference value.

In contrast, Busato discloses a computer system that monitors the duration of each successive interval when a purge valve is open and closed. As a result, a judgment is made to determine the effective leak size by an appropriate algorithm. In other words, Busato determines leakage by counting the number of times the valve is open and closed. The claimed invention, however, recites a leakage determination means based on a state of the pressure within the evaporative fuel processing system, which is detected during the introduction of the negative pressure from the intake system by the negative pressure introduction means. Thus, it is respectfully submitted that the applied prior art neither teaches nor suggests all the features recited in claims 1 and 4. Accordingly, the withdrawal of the rejection of claims 1 and 4 under 35 U.S.C. 102(b) is respectfully requested.

It should be noted that since claims 2, and 5 are dependent upon claims 1 and 4, and that for at least the reasons mentioned above, these claims likewise recite subject matter that is neither taught nor suggested by Busato. Therefore the withdrawal of the rejection of claims 2, and 5 is requested.

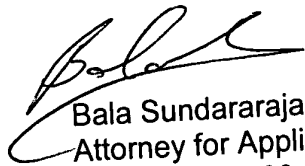
In view of the distinctions discussed above, withdrawal of the rejections to claims 1-6 is respectfully requested. Claims 1 and 4 are amended. Claims 3 and 6 are cancelled. No new matter is presented. Therefore, Applicants submit that the application is now in condition for allowance with claims 1, 2, 4, and 5 contained therein.

Should the Examiner believe the application is not in condition for allowance, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number listed below.

In the event this paper is not considered to be timely filed, Applicants respectfully petition for an appropriate extension of time. The Commissioner is authorized to charge payment for any additional fees which may be required with respect to this paper to Counsel's Deposit Account 01-2300.

Respectfully submitted,

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Enclosure: Marked-up Copy of Amended Claims

MARKED-UP COPY OF CLAIMS

1. (Amended) A leakage determination system for an evaporative fuel processing system that causes a canister to absorb evaporative fuel generated from a fuel tank and supplies the evaporative fuel absorbed in the canister to an intake system of an internal combustion engine,

the leakage determination system comprising:

pressure detection means for detecting pressure within the evaporative fuel processing system;

pressure reduction means for reducing the pressure within the evaporative fuel processing system until the detected pressure [within the evaporative fuel processing system] becomes equal to a first predetermined negative pressure, by introducing negative pressure from the intake system;

negative pressure introduction means for further reducing the pressure within the evaporative fuel processing system until the detected pressure becomes equal to a second predetermined negative pressure lower than said first predetermined negative pressure, by introducing the negative pressure from the intake system [into the evaporative fuel processing system] under predetermined conditions after the pressure reduction by said pressure reduction means; and

leakage determination means for determining [whether or not] that there is a leak in the evaporative fuel processing system[, based on a state of] when the detected pressure [within the evaporative fuel processing system, which has been] detected during the introduction of the negative pressure from the intake system by said negative pressure introduction means is higher than a predetermined leakage reference value.

4. (Amended) A leakage determination method for an evaporative fuel processing system that causes a canister to absorb evaporative fuel generated from a fuel tank and supplies the evaporative fuel absorbed in the canister to an intake system of an internal combustion engine,

the leakage determination method comprising:

a pressure detection step of detecting pressure within the evaporative fuel

processing system;

a pressure reduction step of reducing the pressure within the evaporative fuel processing system until the detected pressure [within the evaporative fuel processing system] becomes equal to a first predetermined negative pressure, by introducing negative pressure from the intake system;

a negative pressure introduction step of further reducing the pressure within the evaporative fuel processing system until the detected pressure becomes equal to a second predetermined negative pressure lower than said first predetermined negative pressure, by introducing the negative pressure from the intake system [into the evaporative fuel processing system] under predetermined conditions after the pressure reduction at the pressure reduction step; and

a leakage determination step of determining [whether or not] that there is a leak in the evaporative fuel processing system[, based on a state of] when the detected pressure [within the evaporative fuel processing system, which has been] detected during the introduction of the negative pressure from the intake system is higher than a predetermined leakage reference value.